



EMPIRE COTTON GROWING CORPORATION

REPORT OF THE ADMINISTRATIVE COUNCIL OF THE CORPORATION ADOPTED AT THE FIFTH ANNUAL GENERAL MEETING ON JUNE 9TH, 1926.

THE Administrative Council have pleasure in submitting herewith their Report on the work of the Corporation for the past year, together with the audited accounts for the financial year ended March 31st, 1926.

PERSONNEL.

The only changes to record in the personnel of the Administrative Council of the Corporation are the nomination by the Cotton Spinners' and Manufacturers' Association of Mr. J. W. Dyson in place of Mr. F. Thornber resigned, and the nomination by the Bombay Chamber of Commerce of Mr. H. P. M. Rae to succeed Mr. O. Marshall resigned.

As regards Sub-Committees, the Council regret to report the death of Sir John Struthers, K.C.B., a valued member of the Research and Training Sub-Committee, and the resignation of Mr. E. J. Turner, C.B.E., from the India Sub-Committee. They also venture to congratulate one of their Vice-Presidents, Lord Lloyd, on his elevation to the peerage, and Sir John Farmer, F.R.S., on the knighthood recently conferred on him. The Executive Committee have already placed on record their appreciation of the services that Sir John Farmer has rendered to the Corporation by his advice on many matters connected with research and with the training of the Corporation's post-graduate Students. Sir Francis Newton, High Commissioner for Southern Rhodesia, has been appointed a member of the Southern Africa Sub-Committee.

FINANCE.

Copies of the Revenue and Expenditure Account and the Balance Sheet for the financial year ended March 31st, 1926, are included at the end of this Report. It will be seen that the total income of the Corporation during the year amounted to £134,295.

The income from investments representing the Capital Grant amounted to £35,428, and was less than the sum received last year partly owing to the fact that the dividends on some of the investments previously held were paid without deduction of tax, whereas all dividends received during the year 1925-26 were paid after tax had been deducted at source, and partly because a certain amount of accrued interest was contained in the sum realized by the sale of certain securities. The income from the levy amounted to £94,662—a considerable increase on the sum received last year, which totalled £74,766. Dividends from investments made from income amounted to £3,850, and sales of Reports realized £13 16s.

The year's expenditure amounted to £93,283, and the balance which appears in the accounts as excess of Revenue over Expenditure is shown as £41,011. A part of this balance has already been devoted to one of the objects for which the Corporation was established, £12,525 having been utilized in taking up shares in two cotton-growing companies operating in South Africa, while a further £5,000 will be required to make the final payment on the shares in one of these companies. The Corporation have a representative on the Board of Directors of each of these companies, and it is hoped that the estates may form a practical illustration of good farming methods. The actual sum available, therefore, to meet other future expenditure is £23,486, and such sums as have not been required for immediate expenditure have been periodically invested in Treasury Bonds as funds accumulated.

Examining the Revenue and Expenditure Account in detail, it will be seen that several new heads of expenditure are included; details as to the circumstances in which the Corporation have undertaken work reported under these heads are given in the different sections into which this Report is divided:

Research.—Expenses to date in connection with the establishment of the Cotton Research Station amount to £15,586. Most of this sum has been spent on the purchase of land and the erection of laboratories and houses.

Nigeria.—The opening of the Corporation's Cotton Seed Farm in this colony involved last year an expenditure of £1,427 upon salaries, passages, and materials such as agricultural implements.

Swaziland.—Mr. R. C. Wood, who was Cotton Specialist in Tanganyika Territory, has been transferred to Swaziland, and expenditure in that country totals £1,510.

Sudan.—As a result of the recommendations made by Sir John Russell and Dr. Leake, the Corporation are paying the salaries of a Plant Breeder and a Chemist, and shared equally with the Sudan Government the cost of compensation for pension rights, payable to the Plant Breeder owing to the fact that he gave up his post as Head of the Botanical Department of the Ministry of Agriculture in Egypt in order to accept service under the Corporation. Expenditure in the Sudan during the period under review amounts to £3,465.

Northern Rhodesia.—The appointment of a Cotton Agriculturist has led to considerably increased expenditure in that Protectorate, as last year the only item under this head was £10 16s. 2d., devoted to the award of cotton prizes. These prizes were renewed this year, and in addition a sum of £657 covers the Agriculturist's passage and salary. The Corporation's share of advances made to planters in Northern Rhodesia amounts to £4,750, the local Government having contributed a similar sum.

Fiji.—Mr. Anson's appointment to Fiji as Cotton Agriculturist leads to this heading appearing for the first time, and the amount expended on his salary and passage, to date, totals £265.

INDIA.

The Indian Central Cotton Committee expressed a desire that the spinning tests carried out last year on single bales of cotton from India should be supplemented by more extensive tests on last season's crop. Five bales each of seven different selected varieties were received from India, and the Corporation were able to arrange for spinning tests to be carried out on them through the courtesy of members of the Oldham Master Cotton Spinners' Association. The results of the tests will be published in the Corporation's Quarterly Journal, *The Empire Cotton Growing Review*. In the meantime, the managers of the mills at which the tests were carried out have expressed the opinion that the varieties 1,027 ALF (Surat) and Cambodia No. 1 appear to be suitable for general use by spinners of ordinary American

cotton. They strongly recommend, however, that saw-ginning should be tried on the Cambodia and further spinning tests made to demonstrate the result.

AUSTRALIA.

Mr. G. Evans, Director of Cotton Culture, Queensland, who was the Corporation's representative in that country, has completed his tour of service. After taking the leave due to him, Mr. Evans is going to make a tour through the American cotton belt; he will then be offered further employment by the Corporation. A letter has been received from the Premiers of the Commonwealth of Australia and of Queensland conveying in the warmest terms the thanks of both Governments to the Corporation for the loan of the services of Mr. Evans, and their appreciation of "the standard of duty followed by him in his task of laying the foundations under, in many respects, novel conditions of a new and important industry in Australia." The Prime Minister of Queensland writes further that Mr. Evans' policy that the industry, if it is to be permanent, must be built upon sound cultural methods in the field, has been amply justified by results.

It was mentioned in this Report last year that the Corporation had undertaken to give financial assistance to the extent of £3,000 a year for a period of five years towards the establishment and maintenance of experiment stations in Queensland. Mr. Evans decided to concentrate at first on one station only, which was all for which he could at present provide adequate staff. This station is in the heart of the cotton belt, and a satisfactory start has there been made in breeding types of cotton to suit various parts of the State. Cotton of full $1\frac{1}{8}$ inch staple is the type aimed at, and other factors such as the time of ripening, size of bolls, etc., are being taken into account also. Mr. Evans has expressed the hope that it will be possible to develop this farm into an up-to-date and well-equipped station for experimental work relating to cotton-growing.

An interesting article by Mr. Evans on "The Future of Cotton-Growing in Queensland" is contained in the *Empire Cotton Growing Review* for April last. In that article he gives it as his view that cotton will form a permanent feature of farming in Queensland as a crop that can usefully be introduced into the rotation of large

numbers of small mixed farms, and that it will be an important factor in settling the large areas that still await development in that State.

SOUTH AFRICA.

The unfavourable weather conditions due to most unusually heavy rains naturally took a heavy toll of the cotton crop of the season 1924-25, with a result that the output fell slightly short of 17,000 bales of 400 lbs. Nevertheless, the reports that reach the Corporation indicate that farmers are by no means discouraged and an increased acreage was planted this season. It is too early to give any close estimate of the probable crop: rains have been heavy in parts, but not general. Rustenburg area is said to be doing well, while Zululand has been very dry throughout the season and is unlikely to give a heavy crop.

The Corporation have added to their staff by the appointment of Mr. F. S. Parsons, a former holder of one of their Studentships, to do experimental and advisory work in the Candover area. An additional chemist has also been appointed from among the staff of the University, Pretoria. Mr. Parnell, the Corporation's Plant Breeder, has been successful in breeding a variety which is highly resistant to jassid, a pest which does much damage in parts of the Union and in Rhodesia. A satisfactory feature, moreover, is that the resistant plants seem to be generally hardy and capable of withstanding all vicissitudes better than the average plant. If this plant maintains these qualities when produced on a large scale, one of the most serious obstacles to the successful development of cotton-growing on the low and middle veldt will be solved. Mr. Milligan has undertaken the supply of seed for these areas through Mr. Parnell, while that for other areas is in the hands of Mr. Pullen, the Government Plant Breeder, who is working at Rustenburg. It is very desirable that an assistant should be supplied to Mr. Parnell, and it is hoped that a suitable appointment will be possible shortly: in view of this probable increase of the staff at Barberton, the Corporation have acquired a small site on which the erection of a house and an office is proceeding.

At a meeting of the Administrative Council which Mr. Milligan attended in October last while on leave, he paid a warm tribute

to the whole-hearted way in which the Government of the Union were co-operating with him and his staff. It so happened that on the same day that Mr. Milligan was speaking at this meeting, General Kemp, Minister for Agriculture in the Union, was opening a ginnery at Louis Trichardt, in the Transvaal. The following is a short extract from his speech on that occasion:

“ In opening this ginnery, I would like to make mention of the hearty support I have enjoyed from Sir James Currie, the Director of the Empire Cotton Growing Corporation in London, and the officials under him. He saves himself neither trouble nor expense to assist my Department in every possible way. Mr. Milligan, the representative in South Africa of the Empire Cotton Growing Corporation, has been very helpful to me. It is a pleasure to mention the great harmony which exists between him and Mr. Pieter Koch, the Chief of the Cotton Division. The relations between the officials of the Empire Cotton Growing Corporation and the officials of the Tobacco and Cotton Division have been, and are still, most cordial. The splendid co-operation that exists between these two bodies of men augurs well for the future of the cotton industry in South Africa.”

Members of the Corporation will assuredly welcome this fresh evidence of the complete success in South Africa of the Corporation's efforts to assist the Agricultural Department through close co-operation with the Government Ministers and the departmental staff.

SWAZILAND.

At the request of the Swaziland Administration, Mr. R. C. Wood, formerly the Corporation's Senior Officer in Tanganyika, has been appointed Cotton Specialist in Swaziland. Mr. Wood will work under the general direction of Mr. Milligan. A report recently received from Mr. Milligan states that Mr. Wood is receiving every assistance both from the Administration and from local farmers, who have expressed great pleasure at his practical programme. Excellent progress has been made: besides the main experiment station at Bremersdorp, a chain of sub-stations is being established, where the principal experiments are repeated

under widely different conditions of soil and climate. Variety tests will be extended also to the sub-stations next year, a step necessitated by the fact that the varying climatological conditions in the several parts of the country may necessitate a differentiation in the varieties grown.

Prior to Mr. Wood's arrival in the country, arrangements were made for a preliminary water survey to be made of a part of the country by one of the local agricultural officers, accompanied by an irrigation expert borrowed from the Union Government, the cost of whose services was defrayed by the Corporation. One of the objects of this survey was to ascertain whether it would be possible to irrigate part of the Crown Lands in Swaziland from the Ingwavuma River. It is regretted that the report of the experts indicated that the scheme was not feasible.

SOUTHERN RHODESIA.

The 1924-25 cotton season experienced quite exceptionally bad weather conditions, with the heaviest rainfall recorded for very many years. The inevitable result has been a most disappointing crop return. This is particularly disheartening to many farmers who planted cotton for the first time, largely because a combination of favourable circumstances made the 1923-24 crop remarkably successful. The result has been that the crop reached only about one-quarter of the amount estimated at this time last year.

An experiment station has been established at Gatooma in charge of a plant breeder, Mr. I. G. Hamilton, appointed by the Corporation to the staff of Major Cameron, their Senior Officer in the country. In order to give Major Cameron some assistance in his general work also, the Corporation have appointed Mr. J. E. Peat, a former holder of one of the Corporation's Studentships, as a member of his staff.

The three ginneries to which reference was made in this Report last year have been erected in the Gatooma, Bindura, and Lomagundi areas. Their cost has been defrayed by the Southern Rhodesian Government, the Corporation and the British Cotton Growing Association jointly. Owing to the unprecedentedly bad

season, but little cotton was ginned by them this year. The country is now equipped with ginning facilities capable of dealing with 50,000 bales in the space of three or four months.

The chief need of the country is improvement in the seed supply. This cannot of necessity be a rapid process, but it is intended to concentrate on this problem at the Gatooma Experiment Station, by means of selection work on the existing seed and by trials of other varieties.

An event of great importance to Southern Rhodesia is the decision of the Government, announced in March, to bridge the Limpopo at Messina. This step, with the construction of a railway to link up with the main line, would provide a much shorter route to Natal, and would also put the country in direct connection with Delagoa Bay.

NORTHERN RHODESIA.

The unprecedentedly wet season rendered the 1924-25 cotton crop an almost complete failure. It was clear that many farmers would need help to enable them to avoid bankruptcy, and to obviate so serious a set-back in the development of cotton-growing in the colony the Government asked the Corporation to join with them in a scheme for providing advances to necessitous farmers. A scheme was worked out between representatives of the Corporation and officials of the Government home on leave. The Imperial Treasury consented to the Rhodesian Government advancing up to £20,000 for this purpose if the Corporation guaranteed to advance an equal amount. The necessary arrangements have accordingly been made and the fund is being administered by a Government Committee. The conditions under which advances are granted have been carefully framed, and full enquiry is made as to the financial position of every applicant for assistance. Up to the present 37 advances amounting to £9,500 have been made. Security has been taken, either by mortgages on the farms or by bills of sale on livestock and implements, and this season's crop has also been pledged. In addition, nearly ten tons of cotton seed have been distributed to be paid for when the crop has been harvested.

Mr. Salter, the Corporation's representative, has been at work in the colony for over six months. Mr. Milligan arranged to pay an early visit to the country at the invitation of the Government, as one of the conditions under which the Corporation agreed to participate in the scheme for giving assistance to farmers mentioned above.

THE ANGLO-EGYPTIAN SUDAN.

The formal opening of the Blue Nile Dam at Makwar by the High Commissioner for Egypt and the Sudan marks the beginning of a new era in the development of that country. It represents the culmination of labours which have gone on without respite since 1904. Many of the pioneers of the movement for the development of the Gezira, of whom Sir Julius Wernher and Sir William Mather may be cited as typical names, have passed away without seeing the fruition of their labours—but Lancashire has stood unflinchingly behind the project from the day that it was initiated, and can look back with legitimate satisfaction to the part she has played. Lord Derby was unfortunately unable to represent the Corporation at the opening ceremony, but the Chairman of the Executive Committee and the Director were present as guests of the Sudan Government. Eighty thousand acres are now under cotton, representing a marvellous piece of organization on the part both of the Sudan Government and of the Sudan Plantations Syndicate in the few months at their disposal. This year the yield per acre is good—it ought to exceed four kantars per feddan—a marked improvement on the previous two years—and the quality is of the highest.

The Chairman and the Director likewise visited Kassala. The flood had been disappointing and the quantity of land under irrigation was much under an average, but here, again, the yield was excellent and the quality of the cotton very high. The Council desire to direct particular attention to the smoothness with which these great schemes are working out. The blessings which they have brought and are bringing to the inhabitants of the Sudan are incontestable, and the picture that those portions of the country under irrigation present to-day, compared with only a few years back, is indeed astonishing to those who are familiar with both spectacles.

Where the labours of so many, living and dead, have contributed to the present happy result, the Executive hesitate to mention any particular name, but they feel they would be lacking in their duty if they failed to point out the mighty debt that is owed to Mr. Eckstein, the Chairman of the Sudan Plantations Syndicate, who in fair and foul weather has stood behind the scheme and its fortunes for over twenty years.

Rainfall cotton prospects continue to make satisfactory headway. The recent decision of the Sudan Government to link up Kassala with the Blue Nile by means of a railway will facilitate progress. Provided the present high standard of general administration in the Sudan is maintained, it is difficult to place a limit on its possibilities.

So far as the particular efforts of the Corporation are concerned, Mr. M. A. Bailey has made an admirable beginning with his seed selection work, and the whole problem is being tackled in a much more comprehensive fashion than was the case a few years ago. Mr. Killby, who recently visited the country, has written a report, supplementary to that of Sir John Russell and Dr. Leake, on the subject of the organization of Research Work, and this report will receive the careful consideration of all interested.

EAST AFRICA.

The publication a year ago of the Report of the East Africa Commission was generally recognized as constituting a notable contribution towards the solution of the numerous problems connected with the economic development of that part of the Empire. The Corporation welcomed particularly the recommendation that the Government should guarantee the issue of loans amounting to £10,000,000 to be mainly devoted to the development of East African transport. A deputation to the Secretary of State for the Colonies was organized in July last by the Corporation, the British Cotton Growing Association and others interested, to impress upon him their views as to the urgency of these proposals of the East Africa Commission, and to suggest further that a certain small fraction of the proposed loans should be set aside for non-recurring capital expenditure connected with medical and

other research and with the education of the native population. Mr. Amery was able to give a reassuring reply to the deputation, and it has recently been announced that the Government will introduce this session the legislation necessary to enable the proposed loans to be guaranteed by the Imperial Treasury.

The Secretary of State for the Colonies has also set up a small Committee consisting of Sir George Schuster, Financial Secretary to the Sudan Government, Mr. R. H. Jackson, Chairman of the Executive Committee of the Corporation, and Brigadier-General F. D. Hammond, who has already reported on railway developments in more than one African Dependency. The Committee's terms of reference are to consider—

(i.) The various development schemes, including capital expenditure on existing works, that might be paid for out of the £10,000,000 East African Guaranteed Loan, with special reference to—

- (a) their prospects of economic success,
- (b) their order of urgency,
- (c) their relation to a co-ordinated scheme of transport in East Africa generally.

(ii.) The nature of the research work that might be paid for out of the Guaranteed Loan and the extent to which the general expenditure on special enquiries may be regarded as capital expenditure to be so paid for.

(iii.) The subsidiary lines of communication for which track vehicles might possibly be used for transport purposes in providing feeder routes to the main lines of communication.

During last year a suggestion was made by Mr. Sampson, the Corporation's Senior Officer in Nyasaland, that a Cotton Conference might be held, consisting of administrative and agricultural officers, entomologists, mycologists and botanists engaged in work connected with cotton-growing in the several Dependencies in East and South Africa (including Portuguese East Africa and the Belgian Congo). The Corporation approved the suggestion and approached the Colonial Office with a view to asking their assistance in the matter. The several Dependencies have welcomed the

suggestion, and the Conference will probably be held in the latter half of August in Nairobi. It is hoped that representatives may be present from the Union of South Africa, Southern and Northern Rhodesia, Nyasaland, Tanganyika, Kenya and Uganda, and possibly also from the Sudan, Portuguese East Africa and the Belgian Congo. A draft agenda was forwarded by Mr. Sampson when he originally suggested the Conference, and additions have since been made to it by some of the countries interested. It is hoped that the Conference will result in the exchange of much useful information: this problem has always been a difficulty which the Corporation have so far not been able to deal with successfully. Despite the willingness and, indeed, the desire of the Corporation to serve as an information bureau with the object of making one cotton-growing country familiar with the problems of another and with the way in which these problems are being met, the scheme must depend for its success on the full co-operation of the scientists and agricultural officers in the several countries. Climatic conditions in the tropics, however, and pressure of work, combine too often to make the task of writing up an account of one's work even more irksome than it is at home, with the result that cases have been brought to the Corporation's notice in which, say, an entomologist in one country has heard nothing of the work that is being done by a colleague on the same problem in another country. It is to be hoped that periodic conferences such as that now arranged will establish personal touch between the several agricultural and scientific staffs, and that they may exchange in conversation information which will be mutually useful, but which they have not hitherto written up into a memorandum or bulletin or otherwise put into a form in which it could be circulated through the medium of the Corporation.

UGANDA.

The figures published at the end of this Report show that the crop again showed a gratifying increase in 1924-25. Copies of the Report by Colonel French on his visit to the Protectorate last winter were forwarded to the Government of Uganda in October last with a request for their comments on the suggestions contained therein. The Director of Agriculture is at present on leave in this country, and it is hoped that he will be able to confer with the

Corporation's staff on the suggestions made by Colonel French as a result of his tour. In September, 1924, the Corporation appointed and paid the salaries of four supernumerary officers to be attached to the Agricultural Department. It is gratifying to be able to report that three of these men, who were all former holders of the Corporation's Studentships, have already been absorbed on the regular establishment of the Government Agricultural Department.

Conditions governing the transport of the Uganda crop apparently still leave much to be desired. The Government have made strenuous efforts to remedy the shortage of rolling stock, but complaints have again been made this year concerning the absence of receiving accommodation at the inland railway stations and lake ports, and the lack of cover at transshipment points on the railway and at the quays. It has been represented that the damage to the cotton caused by exposure represents a very serious financial loss, and it is hoped that the Government will be able to provide the necessary shed accommodation before this season's crop is harvested. Transport facilities are undoubtedly better than they were last year, but if the crop should increase steadily in the future, it is important that the storage accommodation should always be slightly ahead, if possible, of the demand likely to be made on it.

NYASALAND.

Mr. H. C. Sampson, who has been the Corporation's Senior Officer in Nyasaland since January, 1923, has now completed his tour of service. He unfortunately feels that his health will no longer permit of further prolonged periods of residence in the tropics, and Mr. H. C. Ducker, Mr. Sampson's Senior Assistant, has been promoted to fill his place. The Nyasaland Government have conveyed to the Corporation a warm expression of their appreciation of the services which Mr. Sampson has rendered to the Protectorate during his term of service as the Corporation's Senior Officer in that country.

The Experiment Station at Makwapala, which is maintained jointly by the Nyasaland Government and the Corporation, has already begun to attract considerable attention among planters.

The main check to the progress of cotton cultivation is the damage done by the red bollworm, which is intensified by the practice of growing cotton on the same land year after year. One of the main pieces of work at the station has consisted in experiments to determine what rotations are feasible and profitable. The Corporation's entomologist has been occupied almost entirely with a study of the red bollworm and the task of devising methods of control of this pest. Although it is impossible to estimate the damage done by the bollworm, some idea as to its magnitude may be gained from consideration of the fact that the present average yield per acre in Nyasaland means that from a full stand the average number of bolls per plant would be less than two. Plants at the spacing normally adopted in the country should, at a conservative estimate, produce 50 flowers per plant, and the bulk of the loss may be taken as being due to the red and other bollworms, though it should be pointed out that there is no natural shedding of flowers or bolls which would probably occur if the bollworm were not present. These facts give, however, an idea of the importance of the continued efforts on the part of the entomologists and of the staff of the Corporation's experiment station with a view to discovering means of reducing the ravages of this pest.

The success which has attended the attempts made at the experiment station to produce strains of cotton suitable for the highlands has led the Corporation to give assistance to the Government in the establishment of two small sub-stations in districts at a lower elevation where these strains can be further tested before the seed is distributed in the Lower Shire and South Nyasa districts.

The transport problem is of great importance to the development of all the agricultural industries in Nyasaland, and it is satisfactory that as a first step the Portuguese Government have granted a concession to the Mozambique Company to construct the Zambesi bridge. It will be remembered that the East Africa Commission emphasized the importance of this link to the development of the Protectorate, and it is understood that the financial arrangements for this work will come before the East African Loans Committee.

NIGERIA.

Since the last Report, Mr. J. Dawson Shepherd, O.B.E., and Mr. Gilbert Browne have been appointed to take charge of the seed farm which the Corporation are establishing for the Agricultural Department of Nigeria. They began work in January, 1926, and have cleared about 50 acres which they hope to plant this year, soon after the fall of the first rains. This farm is situated at Daudawa, 59 miles from Zaria on the Sokoto road, in Southern Katsina, which, up to the present, has proved one of the best cotton-growing areas of the Northern Provinces. The farm, which consists of about two square miles of uncleared "orchard" bush, was selected by the Agricultural Department, and the soil appears to be good. The cotton grown on the native farms in the immediate neighbourhood is rather above the average of the cotton in Southern Katsina. The organization of the farm and the possibility of developing a considerable acreage under special cotton by a system of co-operative farming, proposed by the Assistant Director, are under the consideration of the Executive Committee and, if approved by them, will be recommended to the Government of Nigeria, which has expressed general approval of the scheme. In these circumstances, it would be premature to give any further details.

During the winter the Assistant Director visited Nigeria and was able to explain the object and aims of the Corporation to the Governor, Sir Graeme Thomson, who has since issued a circular to all Government Departments explaining the position of the Corporation and giving instructions that the officials of the Corporation are to receive every possible assistance.

Colonel French has been much impressed with the possibilities of cotton-growing in Northern Nigeria. Since 1916, when American seed was first distributed to the native farmers, there has been a steady increase in the amount of cotton exported. The amount which passed through cotton markets last year amounted to about 28,000 bales of 400 lbs. and the amount this year will be about 40,000 bales. While it is unlikely that the increase from year to year in the Northern Provinces will be sensational, there is a prospect

of a steady increase up to an annual output which the Director of Agriculture places as high as 300,000 to 400,000 bales.

The Hausa farmers of the north are good cultivators and have learnt to appreciate the superiority of American cotton over the native varieties which have been in cultivation for many years. The native spinners also appreciate its qualities, and although this may reduce the amount available for export, it will stimulate its cultivation over an area very much greater than that in which it is grown at present. As is the case in most other parts of Africa, the amount of cotton that can be cultivated is limited by population and transport facilities. To a certain extent also the extension of cotton-growing depends on pioneer ginneries. It is understood that the British Cotton Growing Association have under consideration the construction of several comparatively small ginneries. These questions are dealt with at some length in the Report by Colonel French which has been submitted to the Executive.

In Southern Nigeria cotton-growing has hitherto been a failure. The Director of Agriculture, Mr. O. T. Faulkner, when first appointed, in 1921, formed the opinion that the experiments previously carried out in connection with cotton-growing had not led to any conclusions that could usefully be followed. Since 1922, with the assistance of a most efficient Department, he has been carrying out careful experiments, and there is a good prospect of the development of a cotton-growing industry in the Southern Provinces, provided that it proves possible to multiply to a commercial scale, and without deterioration, a variety of cotton that has been grown successfully at Ibadan, the headquarters of the Agricultural Department. Mr. Faulkner hopes to send specimens of this cotton to this country this year for spinning tests on a small scale. He is convinced that if a cotton-growing industry is to be developed in Southern Nigeria—or, rather, in the Middle Belt of the Colony—the lint must be of such quality and staple that it will command a considerable premium, and that, moreover, such cotton can probably be grown more easily and successfully than varieties which produce a maximum staple of $1\frac{3}{16}$ inches.

EMPIRE COTTON GROWING CORPORATION.

REPORT OF THE FIFTH ANNUAL GENERAL MEETING.

The Fifth Annual General Meeting of the Corporation was held at the offices, Millbank House, Westminster, on Wednesday, 9th June, 1926.

The President of the Corporation (the President of the Board of Trade) regretted that his Parliamentary duties prevented him from attending, and in his absence the Chair was taken by the Right Hon. The Earl of Derby, K.G., President of the Administrative Council.

The Secretary reported that the only changes in the personnel of the Administrative Council since the last General Meeting were the nomination of Mr. H. P. M. Rae, representing the Bombay Chamber of Commerce, in place of Mr. O. Marshall, resigned; and the nomination of Mr. J. W. Dyson as one of the representatives of the Cotton Spinners' and Manufacturers' Association, in place of Mr. F. Thornber, resigned.

THE EARL OF DERBY: As your President it is my pleasant duty to welcome here members of the Indian Central Cotton Committee, and the Directors of Agriculture for the Sudan, Nigeria, and Uganda. They have already been welcomed at our Administrative Council Meeting by Mr. Jackson. Now in this fuller meeting I venture to do what he did then, and express our great pleasure at their presence with us to-day.

Our Annual Meeting had to be postponed, as it was feared, and not without reason, that the dislocation of the railways, consequent on the General Strike, might prevent the attendance of some of you.

For the same reason the Annual Report has been produced in rather exceptional circumstances, and had to be printed without being discussed by the Executive Committee. Various members, however, sent in their comments to the Corporation

Offices, and these have been embodied, as far as possible, in the Report.

As usual, having no technical knowledge, I shall not go into the details of the Report, which I will ask the Director to deal with, only confining my remarks to certain aspects of it. Unfortunately, although at different times I have been in most of the places which are mentioned in the Report, I cannot speak with that immediate knowledge of what is going on, and I therefore am obliged to base any remarks that I may make on the reports of others.

I should like, first of all, to pay a tribute to Mr. G. Evans, who has just completed his tour of service in Australia. We have heard from him, at the Council Meeting, a most interesting report, which showed to me two things: first of all, his most intimate knowledge of the subject; and secondly, his evident desire to help in every way possible the work of our Corporation. His work in Australia has not been easy. He had to deal with a situation where the Australian farmers were naturally disappointed at a fall in prices in consequence of the increased American crops of the last few years. You will remember that two years ago I told you in my remarks that Australia appeared to be a country for small holdings of cotton grown on a sound system of rotation with other crops, and that the cotton grown should be the best possible that conditions of soil and climate permitted. I think we were all glad to hear and to read in the *Empire Cotton Growing Review* the opinion that Mr. Evans has expressed, confirming this remark that I made. Two essential requirements have been emphasized by Mr. Evans. One was an increase of population, and the other a diminution of the cost of picking. I leave it to you to make any suggestions you may think necessary on the subject to the Director.

In South Africa Mr. Milligan continues to collaborate very happily with the Department of Agriculture. His staff has been strengthened by the appointment, by this Corporation, of Mr. Wood to Swaziland, and we have already received reports that both the local Administration and the farmers appreciate the work that Mr. Wood is doing, and his knowledge of cotton cultivation. I am glad to be able to report

this for various reasons, amongst which is the fact that we have always regarded Swaziland as the "key position" for that part of South Africa which lies between the Drakensburg and the sea.

Mr. Parsons has been appointed to the Corporation's staff, and is working in the Candover area. I think it is likely—more than likely—that you will have to strengthen your staff still more in South Africa, and that an entomologist will be required specially to investigate the insects which attack cotton in that area.

Last year we had a high expectation of a big increase of the crop in South Africa, but it was disappointed owing to abnormal rains, and I am afraid there is a fear that the irregularity of rainfall will continue to affect the crop in this part of the Empire from time to time, though I am told that we may be sanguine that seasonal vicissitudes can be combated by good cultivation methods.

I am glad to see, as I am sure you will be, that in both Northern and Southern Rhodesia the Corporation are taking an increasingly active interest in the cotton-growing industry, and it is to be hoped that there will be a good crop there this year to make up for the bad season of last year. I am sure that the point on which the Corporation can most usefully concentrate is the improvement of the seed supply, for there is nothing which can affect a new area here or anywhere else more harmfully or be more discouraging to growers than sowing the wrong varieties of seed, or seed of poor quality. The practical experience of growing cotton and of accurately investigating the values of different types will give our representatives an authority, and make their advice of value in a way in which no other activities can compare. Here I do not only speak as the President of this Corporation, but also of the British Cotton Growing Association, in which capacity I have said that I think the best work that that body did as a pioneer body was to find out and to give to the growers the best kind of cotton suitable for their particular areas.

In parts of East Africa progress has not been great this year. Unfavourable weather conditions have caused a slight setback—I hope only temporary—in Uganda. In Tanganyika

there are signs of a small increase, but it is slight compared to the cultivable area. There is particular need for improvements in transport facilities in this territory. Unfortunately there is no area connected with cotton-growing that is not in want of better transport facilities. To my mind the giving of better transport, or the procuring of better transport facilities, is the one way in which we are going to be able to lessen the cost of cotton in this country. There is particular need, as I said, for better transport facilities in this territory, for the man power in the Mandated Area is small, and it is essential, if the country is to be developed, that such man power as there is should not waste its energies in head portorage.

Nyasaland remains in great need of more and better communications with the coast—the same old story—an outlet from the north of the Protectorate through Tanganyika, and an improvement of the line which goes southward to Beira, would make a great difference to this country.

We are all awaiting with interest the report of the Committee appointed by the Secretary of State for the Colonies to advise him regarding the expenditure of the ten million pound guaranteed loan, which we are all so glad to see the Government have approved. I congratulate the Corporation, of which we are all members, on the part they have taken in pressing for the sanction of this loan, and also on the fact that the Chairman of your Executive Committee is a member of this Committee. I do not think that any higher compliment could have been paid to the Corporation than this, and I regard it as a real recognition on the part of the Government of the active and disinterested part you have played in helping the development of Tropical Africa, and of the fact that you have, since your Charter was granted in 1921, acquired an extensive, and coupled with the British Cotton Growing Association, a unique knowledge of the needs of the continent.

Since our last meeting the Corporation have greatly increased their practical knowledge of Africa, and many of those who have travelled there I am glad to see with us to-day. Colonel Shute and Mr. Orme have visited Uganda, Kenya, Rhodesia and South Africa; the Chairman of your Executive Committee, your Director and Secretary have all been to the Sudan. I

want to thank your Director for the kind reference he made to me at the Council meeting as regards the Sudan. I only wish it had been in my power to have accompanied them on the very interesting expedition they had. Mr. Killby has written an extremely interesting report which, if acted on by the Sudan Government, should greatly assist the co-operation of the different bodies interested in cotton-growing there. Mr. Himbury and Mr. Thomas, both of whom I am glad to see with us to-day, have made an extensive tour in India, East Africa, and the Sudan, and your Assistant Director has been to Nigeria. Mr. Himbury's report, if I may say so, is very well worth reading by all those who have the interest of cotton-growing at heart.

This year has seen the formal opening of the Makwar Dam on the Blue Nile by Lord Lloyd, High Commissioner in Egypt and one of your Vice-Presidents, one of the greatest works that has ever been achieved with English money and under English administration.

I am glad to think that the Sudan continues to justify the high hopes that Lancashire has always entertained of its productive power, which will be so much added to by this dam. Its possibilities as regards rainfall cotton are, I am informed, every whit as great as those connected with irrigated cotton. Railway development continues, and the extension of the Kassala Railway to the Blue Nile, which will not be long delayed, will provide the country with greatly increased railway facilities, in addition to opening up fresh areas.

Your Director just now, in his remarks to the Administrative Council, pointed out something which I would endeavour to support as strongly as I can, and to emphasize to the extent of my power, and that is that the one necessity in the Sudan is the continuance of the high standard of administration that has characterized the country for a quarter of a century, and so far as I can judge, the appeal that the country and its conditions of work make to men of the right stamp is as strong to-day as it ever was.

May I make here just one allusion? A few hours ago I was present at the unveiling by the Prince of Wales of the Memorial to Lord Kitchener. That memorial will stand for all time, but the best memorial to him will be his reconquest of the Sudan

and the application of the wonderful possibilities of that country to the commercial life of this country.

In Nigeria there has been a satisfactory increase in the American type of cotton grown in the North. This is at present the only cotton exported from that Protectorate which is of importance, for the native cotton as grown in the South is of little value. Colonel French—who is with us—reports that he believes that Northern Nigeria will go ahead steadily, and that it is quite possible that the Director of Agriculture and his Department will be able to produce a cotton that will grow in the more humid climate but richer soil of the South. Until, however, a small sample has been through a spinning test and the variety has been proved capable of increase without losing its qualities, the Department will not commit itself on this subject.

I should like here to pay a tribute to Mr. Faulkner, Director of Agriculture, and to the work which he has done for Nigeria since he was appointed five years ago. He has created a most efficient and enthusiastic Department, and has inaugurated a definite and well-considered policy, which he is carrying out with success. Above all, his Department have won the confidence both of British officials and native growers.

Mr. Shepherd, who was appointed to manage the seed farm which you are financing, has, since he started operations in January, cleared sixty acres, most of which are, I believe, cultivated and ready for sowing with cotton and other crops. He has also built houses for your staff—a small one at present—and is organizing labour for the farm. This is not an easy matter in Nigeria, where practically every native is himself a small-holder. Colonel French has submitted to the Corporation a scheme for developing the seed farm on a co-operative basis. This scheme has the approval in principle of the Nigerian Government, and, if adopted, will be an interesting experiment with considerable possibilities.

As I am on the subject of Nigeria, I will ask you to allow me to mention for a moment your transport experiment, which you may remember we have discussed on previous occasions. I am told that for various reasons it has not been an unqualified success. I think in the present stage of development of half-

track caterpillar vehicles it was hardly to be expected that they would prove immediately successful, because we know there is a great deal still to be done before they become perfect. To put the matter in a nutshell, the metal track is difficult to lubricate, while the rubber track needs to be improved in its wearing qualities. Finally, there is diversity of opinion regarding the best type of road for Africa—I am bound to say the same difference of opinion seems to exist in this country too—and a certain measure of disagreement on the part of experts, equally applicable to this country. There are many problems to be investigated and solved in connection with transport in Africa; and I am glad to hear that you have decided to continue your Mechanical Transport Committee, and that they are experimenting with producer gas for use on lorries.

Skilled personnel, as your Director has said, for Colonial Agricultural Departments still remains an important necessity. As I have mentioned already, we all know that transport facilities must be improved before cotton can be carried at a reasonable cost from the many potential cotton fields in the Empire, and particularly in Central Africa; we know also that the extension of cotton-growing depends primarily on having sufficient density of population to cultivate, but neither is of any use unless we have men to teach the natives how to become agriculturists. The native of Africa is not as a rule an agriculturist by tradition or instinct; but that it is possible to make him one those who have great experience of the matter have no doubt.

For these reasons I hope you will agree that the Corporation should continue their scheme for post-graduate students until, and possibly after, the Colonial Office have inaugurated their scheme for training agricultural officers, because this Corporation, being free of the regulations and control that are necessary, but aggravating, in a Government Department, can provide just that little extra drive that makes all the difference between having personnel in advance of necessity, and on waiting on necessity before asking for sanction for personnel.

On every occasion that I have moved this Resolution I have pressed for support for the Imperial College of Tropical Agri-

culture at Trinidad. In the hope that my words may go outside this room and reach a larger audience than is here to-day, I would lay stress on the fact that we have an opportunity as well as the necessity for creating a Tropical Agricultural College for use throughout the Empire, which should be as efficient as its possibilities are great, and by which none of us can tell how much advantage cannot be gained for the Empire generally.

Gentlemen, I thank you for having allowed me to make you these few remarks, and, without further words, I will ask you to receive the Report, but before doing so I would ask the Director kindly to make some comments upon it with his infinitely greater knowledge of the subject than I can possibly possess.

THE DIRECTOR: I have already inflicted myself on the previous meeting, and I do not propose to do so again. I am only going to say one thing that I meant to say before. As I told you, I was tremendously interested in my visit to the Sudan, and I was very, very interested in the system of land tenure which really Lord Kitchener, because it was his own scheme, instituted in the Gezira. It is really an application of the Metayer system to tropical conditions, and at a time when all sorts of conflicting opinions are held, all equally honestly, as regards the best method under which the native of Africa is to develop, I do think it would be an extraordinarily useful thing if some perfectly impartial economic body—if such a thing exist outside the Kingdom of Heaven—could be induced to study what is being done there, see if they approve of it, as I do, and see if it is capable of application in other parts of the world.

I rode through all those areas in 1913 before I retired from the Sudan Service, and the native was then literally starving. He was starving to death in one of his periodic famines. To see them now, with the native well off, and his animals well off, and everybody connected with the scheme doing quite well, is extremely instructive. The only party to the scheme who has not done quite so well as he should have done is the Sudan Government. The reason is that no human being could have foreseen the readjustment in values that followed the war. No

one in 1912 and 1913 could possibly foresee the shifting of values that was going to take place.

That is all that I can profitably say. I have said it all already. I do think that the system of land tenure instituted there, the partnership system, and the method under which I think it gives the native the gifts of capitalism without any of the exploitation of capitalism, and keeps him on his land, and keeps him working on his own land, is well worthy of more careful study from everybody who is at all interested in that particular set of questions.

MR. JACKSON: My Lords and Gentlemen,—I think after the way in which the Report has been moved and commented on by the Director there is nothing left for me to say. I formally second the motion.

Carried.

On the motion of Mr. Foster, seconded by Colonel Shute, it was—

Resolved: That Messrs. David Smith, Garnett and Co. be reappointed Auditors to the Corporation, and that their remuneration should be fixed at such sum as may be recommended by the Executive Committee on the completion of the audit.

COLONEL C. N. FRENCH: The Executive this morning sanctioned the publication of my Report on Nigeria, and therefore I need not touch on it at any very great length; but I should like to take this opportunity of saying how extremely kind, helpful, and hospitable were the Government, Sir Graeme Thomson, the officers of the Administration, and particularly of the Agricultural Department of Nigeria.

In my remarks I am not going to touch on the prospects of Southern Nigeria. They depend, as Lord Derby has told you, on the tests of the cotton which has been developed in the South by the Agricultural Department.

In the Northern provinces of Nigeria the prospects are in my opinion distinctly favourable, and the crop this year increased from, I think, about 26,000 bales last year to 40,000 this year. The Director of Agriculture, who is here and will correct me if I am wrong, estimates the future possibilities at somewhere about 300,000 bales.

The climate and soil of Nigeria are not ideal, but the Protectorate has certain compensating advantages. It is the one area in Africa which has a really adequate population. Nigeria has a population of close on 20,000,000 people, and these people both in the North and South are for natives quite good agriculturists. Moreover, they are practical spinners and weavers, and it is partly as practical spinners and weavers that everywhere one hears a demand for better seed and for the American type of cotton in preference to the native varieties.

As regards the seed farm which the Corporation have sanctioned in Nigeria, a good area has been cleared and good progress has been made. I think that about sixty or seventy acres will be sown with pedigree cotton this season, which is a very good first step for six months' work. The difficulty about a seed farm in Nigeria is labour. The people are almost entirely small-holders, and it is extremely difficult to get them to come in sufficient numbers to cultivate as large an area as one would like to have for a seed farm. It was for that reason that the Director of Agriculture and myself thrashed out together a scheme of co-operative farming. Land tenure in Nigeria does not admit of tenant holdings, and therefore if co-operation takes place it will have to be the co-operation of free farmers. Some doubts have been expressed as to whether it will be possible to control free farmers and to get them to accept even a light system of supervision. But on the other hand, the influence which their Emirs is able to bring to bear on the people is very considerable, and it is fortunate for us that the seed farm is situated in the Emirate of Katsina, the Emir himself being one of the most progressive and enlightened of all the Northern Emirs. Mr. Faulkner and I discussed this co-operative scheme with the Emir, and as far as one could judge he is fairly enthusiastic about it and will use his influence to make it a success. I have heard since that he has actually visited the farm, and has been very much pleased and impressed with what he has seen there. If this scheme is a success, and if it is possible to bring rather suspicious native farmers into this scheme, it will enable the Corporation and the Agricultural Department together to cultivate such an area with pedigree seed that it may be, I will not say a paying proposition, but at all events a fairly reasonable economic proposition; and the

profits made on the sale of lint may go a considerable way towards paying overhead charges.

I think that is about all I have to say in connection with my report on the seed farm in Nigeria.

The Chairman called on those Directors of Agriculture who were present to say if there were any specific directions in which the Corporation could help them in their work.

MR. HEWISON (Sudan): We are truly indebted to the Corporation for the help we have already received, which we trust we shall continue to receive in future. There are a great many details to be settled in connection with the various questions, particularly on the research side. We have already received handsome support from the Corporation, and we continue to get their sympathy and advice in every way in which we can possibly require it. I do not think I can mention offhand any particular point on which we require assistance, but doubtless we shall put some to the Director before the summer is over if we have.

MR. FAULKNER (Nigeria): I think that in tackling the seed farm in Nigeria you are doing the thing that will help us most. The Nigerian Government is not particularly hard up, unlike most Governments. They are also very exceptional in having realized that the prosperity of the country depends upon agriculture. They are therefore not in any way slow in providing what is needed in the way of staff, and they are doing their very best in contriving to keep up with the needs of the country in the matter of transport.

The question of the seed supply offers a great difficulty, because it is practically impossible in Nigeria for there to be a big farm, and we cannot get seed multiplied at the rate and with the certainty with which it can be done in other countries; for instance, the Punjab. Therefore in tackling the seed farm, you are doing for us a thing that is wanted. Colonel French's scheme is the only way in which it can be carried out in a large way at a reasonable cost, and the success of it will depend on the tact of the people concerned. It is obviously difficult when you have the man who is a small-holder and freeholder, and is independent, as the small free-

holder is all the world over. You are practically asking him to come in and submit himself to some degree of supervision. It is not out of the question if we can tackle it in the right way. It is a trial that may fail, but if it succeeds it should be a very great success.

MR. SIMPSON (Uganda): It is a very great pleasure to be at your meeting this afternoon, and I have to thank the Corporation for sending help in the way of men. My great difficulty in Uganda has been to get trained men. When I was home two years ago, I was fortunately able to take some back with me, and some of them have now been absorbed into the Department. I think the greatest help this Corporation can give to Uganda is to keep pressing the question of railways. Last year we grew more cotton in the country than could be conveniently carried by our present railway facilities, and the only way at present that I can see which would be of most benefit to our country is to extend our railways. If we get our railways, we will give you more cotton. It is no good growing the cotton unless it can be carried away in reasonable time.

The prices obtainable both for cotton and groundnuts have been considerably lower this year than in 1925. This is likely to affect the former less than the latter crop, which is a more difficult one for the farmers and middlemen to carry to market.

Transport.—Nigeria is a country of pack animal transport. There are no wheeled vehicles drawn by animals, because the animals are not trained. An enormous number of pack donkeys travel along the main Sokoto-Zaria road, which is an "all-weather" road suitable for mechanical transport. There are comparatively few lorries using this road, and they have cut it up to a very serious extent. In these circumstances the Corporation's experiment of sending three "half track" lorries to Nigeria was watched with great interest by the authorities. Unfortunately, however, it has not proved a success up to the present. This was due to the fact that the lorries were used on the Zaria-Sokoto road, which is neither metalled and well-surfaced nor an earth road, but has been surfaced with loose laterite gravel, which has a most damaging effect on both metal and rubber tracks. The result has been that the small Guy lorry with a Roadless Traction Track has been completely worn out, and the Burford-Kegresse lorry was for a time "immobilized" by the wearing of the rubber track. Colonel French made a personal reconnaissance of a road which he believes will be a fair test of the lorries next year and which is very short of donkey transport. This road connects Zaria with a good cotton area, and it will be used by the Corporation's lorries next season.

The technical reports on the lorries are being considered by the Mechanical Transport Sub-Committee, which will issue a report in due course.

SIERRA LEONE.

It was reported last year that the British Cotton Growing Association had provided a ginnery which had been erected at Boia. Unfortunately the weather conditions proved unfavourable last year and the Association received only 20 bales of cotton from Boia, of which 18 were exotic American cotton.

CEYLON.

At the request of the Government the Corporation arranged for Mr. G. R. Hilson, of the Indian Agricultural Service, to visit Ceylon to confer with the Director of Agriculture on the cotton-growing possibilities of the Island.

Mr. Hilson reports that the extension of cotton-growing in Ceylon is a part of the larger problem of inducing the local cultivator to cultivate the same land in consecutive years under a proper crop rotation, instead of moving from one piece of ground to another and allowing the piece first cultivated to revert to jungle. A more permanent system of land tenure is therefore a first necessity, together with a sound system of agriculture. The question of water supply for the tenant and his family is also a matter of importance which will have to be solved. Mr. Hilson's suggestion, with which the Director of Agriculture agrees, is that the area for each family should be 20 acres, of which 15 acres should be cultivated annually. It is considered that the belt in the Southern Province in which lie Mamadolo, Ambalantota and Hambantota is the most suitable for cotton-growing, and the Director of Agriculture believes that 400,000 acres there could, in course of time, be brought under cultivation, in which cotton would form the money crop of the rotation. It is suggested that experimental work on cotton should be carried out at Ambalantota and that two other stations should also be started. The Director of Agriculture has enquired whether the Corporation could provide a cotton experimentalist for a period of five years; and this question is under consideration: as usual the chief obstacle that presents itself is the difficulty of finding a suitably qualified man for the post. Mr. Hilson considers also that the country around Anuradhapura, in the North Central Province, is worth a trial as a possible cotton area.

CYPRUS.

Last year the Corporation secured for the Agricultural Department a supply of Triumph seed from America, as the Department wished to carry out trials with this variety. This year the Governor has asked for the Corporation's assistance and advice regarding

the possibility of extending the cotton-growing industry. He proposed starting an experiment station, and enquired if the Corporation could provide an officer to establish and run it. It appears that boring operations are being carried out to determine the possibilities of extending the area which can be placed under irrigation. The Executive Committee considered that it would be premature to start an experiment farm until the result of these boring operations is known. The Executive Committee consider that while the Corporation ought to neglect no opportunity of helping the various cotton-producing colonies, even though, as in the case of Cyprus, the total output can never be large, at the same time it would seem that information as to the quantities of water available for irrigation and the price at which it could be supplied to cultivators should first be obtained, since it is on these two factors rather than on the demonstration of improved cultural methods at an experiment farm that the possibility of extending the area under cotton must primarily depend. The Governor has been asked to keep the Corporation informed as to the results of the trial borings now being undertaken and to give an estimate of the increased acreage that may be brought under cotton as the result of an increased water supply. The question of the possibility of finding an expert will then be further considered.

Fiji.

In the last Annual Report reference was made to the visit paid to the Islands, at the request of the Government, by Mr. Evans, the Corporation's representative in Queensland. Mr. Evans reported hopefully on the prospect of developing the cotton-growing industry, and recommended the appointment of a cotton agriculturist. The Government accordingly asked the Corporation for their assistance in this connection, with the result that Mr. R. R. Anson, a member of Mr. Evans' staff in Queensland, has been appointed for a period of three years. Mr. Anson took up his duties in November last.

The British Cotton Growing Association have also undertaken to assist the Fiji Government, if requested, by means of an advance for the erection and equipment of a ginnery.

PAPUA AND NEW GUINEA.

The Commonwealth Government requested Mr. Evans, the Corporation's Senior Officer in Queensland, and Mr. Ballard, Cotton Entomologist, to visit these territories and to report on their cotton-growing possibilities. The reports will be published in *The Empire Cotton Growing Review*. As regards Papua, it would seem that the Agricultural Department needs reorganization and strengthening. There is a dry belt of about 50 miles on each side of Port Moresby that should prove suitable for cotton.

In New Guinea the climate seems to be unsuitable except in the Markham Valley, which, however, seems particularly suitable for a native-grown crop. Mr. Evans advocates further experiments on a more extensive scale with a view especially to determining the best time for planting and the varieties best suited to the conditions. There is also a promising type of native cotton on which selection work could be done with advantage. The Director of Agriculture asked the Corporation if they could provide an officer to take charge of this experimental work for two years. The Executive Committee pointed out that it would be practically impossible to find an experienced man who would accept a contract for two years only, and asked the Colonial Office whether they could conceivably second an experienced officer for that period from one of the cotton-growing colonies. Enquiries have so far not been successful.

STUDENTSHIPS.

The Corporation continued their scheme for the award of post-graduate Studentships during the year under review. Thirty-one men have so far received their training under this scheme. Of these, seven hold appointments under the Corporation, twelve have entered the service of colonial Agricultural Departments in Nigeria, Uganda, Iraq, Sierra Leone and Ceylon, three are employed by the Sudan Government and three are in the service of the Sudan Plantations Syndicate. A further fourteen men are in training at the present time, and in addition a special grant has been made to one of the staff of the Agricultural Department, Nyasaland, to enable him to spend six months' study leave in America.

It was mentioned in last year's Report that the Colonial Office had appointed a Committee to report on the staffing of, and the conditions of appointment to, the colonial Agricultural Departments. As a result of the findings of that Committee the Colonial Office have decided to offer annually a number of post-graduate Scholarships in Agriculture, the conditions of the award of which follow closely the lines of the Corporation's Studentship scheme. It is intended that from 1927 onwards vacancies in the staffs of the Agricultural Departments shall be filled so far as possible by the selection of scholars whose progress has been satisfactory.

One of the chief reasons which led the Corporation, as one of their first actions, to establish their Studentship scheme was that they were strongly of opinion that the qualifications of cadets in the colonial Agricultural Departments badly needed strengthening before they could adequately discharge their duties as advisers on agriculture, either to Europeans or natives. The Committee appointed by the Colonial Office apparently held similar views, and now that effective steps are being taken by the Government in this direction it is probable that in the future the need for the Corporation to undertake the training of men will diminish. If this is so, the Corporation will be able to reduce the number of Studentships offered to such a number as will enable them to keep up the supply of trained agriculturists and scientists required for their own service. This number is never likely to be large; it is contrary to the Corporation's policy to maintain large staffs independent of the Government Agricultural Departments in the several cotton-growing countries. When requested by the local Government, the Corporation have secured, when possible, the services of an experienced expert who has been attached to the staff of the local Director of Agriculture, and he has been provided with such assistants as he may require. But these staffs will never be numerous, otherwise it might be difficult wholly to avoid friction between them and the staff of the Agricultural Department if circumstances were to arise in which opinions differed either as to a particular course of action or as to the scope of the functions of the Corporation's staff. When the latter consists, as at present, of at the most three or four juniors under a man of wide experience, difficulties are unlikely to arise.

An interesting feature of the award of Studentships this year has been the election of three South African Students, chosen jointly by the Union Government and the Corporation's staff in South Africa. Two of these men are studying at the College in Trinidad and a third is working under the Corporation's Plant Breeder in South Africa.

The Colonial Office Scholarship scheme mentioned above contemplates that the successful candidates will spend one of their two post-graduate years at the Imperial College of Tropical Agriculture, Trinidad. The value of training given at the College has been recognized already by the Corporation, who for the last three years have sent several of the holders of their Studentships to the College each year and have contributed £2,000 to the special appeal for funds made by the College last year; they also make a contribution of £500 a year to the College funds, in consideration of which the Corporation's Students pay no tuition fees.

In giving evidence before the Government Committee on Industry and Trade the Director of the Corporation stated that one of the principal administrative difficulties in the extension of cotton-growing was the deficiency of adequately trained technical staff, and drew attention to the facilities offered by the College for enabling this deficiency to be made good. He expressed the hope that the Committee might be able to recommend the Government to place the College on a sound financial basis, a step which the Corporation have also urged directly on the Colonial Office.

The work of the College is of great importance to the production not only of cotton but of many other tropical products also, and it is gratifying that the Government have now agreed to make a contribution of £15,000 towards the erection of a students' hostel, a grant of £3,000 towards the general expenses of the College in 1926-27, and if necessary certain further contributions in the three following years.

The College, however, is still in no sense whatever adequately equipped for its work, and it is a matter of vital and primary importance that funds be provided to enable it to perform the ever-increasing duties that are being imposed upon it. In the opinion

of the Corporation largely increased financial support to this institution ought to take precedence of anything else that is projected in the way of tropical development, even of communications.

RESEARCH.

At the last General Meeting it was reported that the Executive Committee had under consideration a Report by Sir John Farmer and Mr. Killby on Trinidad as a possible site for the establishment of a Cotton Research Station. A copy of the Report was circulated to all members of Council and others who might be interested. The Executive Committee have adopted its recommendations, and about 60 to 70 acres of land have been either purchased or taken on a 99 years' lease close to the Imperial College of Tropical Agriculture for the purpose of establishing a small Research Station. Dr. Leake, the Principal of the College, and Mr. Nowell, Assistant Director of Agriculture, Trinidad, have kindly consented to act as a local Advisory Committee. Pending the appointment of the Corporation's staff, the local Committee undertook the transaction of all business connected with the purchase and clearing of the land and the erection of laboratories and houses for the staff. It is intended that in the first instance the staff of the Station should only be small, but the Executive agreed in deciding that care should be taken to select men of first-rate scientific ability and experience as Heads of Departments. Dr. S. C. Harland, who was formerly Head of the Botanical Department of the British Cotton Industry Research Association, and subsequently Professor of Botany at the Imperial College of Tropical Agriculture, has been appointed Head of the Genetics Department, and Dr. T. G. Mason, formerly Government Botanist, Nigeria, Head of the Department of Plant Physiology. An Assistant has also been appointed in each Department. The laboratories and houses are nearing completion and the equipment for the former is now being purchased.

It may not be out of place here to repeat the summary contained in the Introduction to the Report by Sir John Farmer and Mr. Killby as to the objects which it is sought to secure by means of the Research Station. A distinction must be drawn between

those problems, on the one hand, the solution of which will lead to an extension of our general knowledge of cotton and of the ultimate conditions which govern the development of the plant and the properties of its lint, and, on the other hand, those which are primarily local in their origin and can only be fully solved under the conditions of the locality in which they arise. At Trinidad it is intended to investigate the cotton plant in all phases of its growth and under rigorously controlled conditions, so that it may be possible to ascertain and to estimate the importance of the several factors which contribute to the final result. On the other hand, what it is not intended to do is to provide strains of pure line seed for large-scale distribution to the cotton fields in different parts of the Empire. The effect of the acclimatization factor on the properties of any particular type of cotton renders it essential that the production of seed for this purpose must be carried out in the several countries themselves, and the utmost that a Central Station can do in this direction, wherever it may be situated, is to breed out pure lines for special characteristics. These in their turn will have to be locally tested in different parts of the world in order to find out whether they are satisfactory in any particular country, and so to serve in that country as a starting-point from which it can raise its own seed.

While it is hoped that the Station will so justify itself by its work that it will be adopted by cotton workers in the several parts of the Empire as a central clearing-house at which local problems can be further investigated under standardized conditions, its establishment will in no way relieve Departments of Agriculture of the necessity of continuing the scientific side of their research work on cotton. Local problems can mostly best be solved locally, but the experience which the Central Station should accumulate should enable it to suggest where and how any particular problem should be attacked with the greatest prospect of success, and thus enable it to be of assistance to all cotton research workers.

It will be remembered that the Corporation make grants annually to certain Universities and institutions in this country in return for which a member of the staff has been detailed to study certain branches of cotton literature, and to undertake any specific pieces of research work required. During the past year an investi-

gation has been conducted at the Imperial College of Science and Technology on a disease of Queensland cotton seed present in samples sent by Mr. Ballard, the Corporation's Entomologist in Australia: the results have been published in *The Empire Cotton Growing Review*. At Manchester University a similar investigation has been carried out on a sample of diseased seed-cotton sent from Nyasaland by the Director of Agriculture. As a result the evidence showed that the boll-rot of Nyasaland is of the same type as the internal boll disease of the West Indies and a further paper dealing with the subject is promised. In collaboration with the Corporation's Entomologist in Nyasaland, the Entomological Department at Manchester is also endeavouring to detect and isolate the active principle in the cotton plant that makes it attractive to the red bollworm, which continues to cause so much damage to the crop in that country. If this is possible it may be feasible to devise artificial traps which will divert this pest from the cotton plant.

The authorities of the Imperial College of Science and Technology gave Dr. W. Brown leave of absence last summer to visit the American Cotton Belt, to enable him to study cotton cultivation and the diseases to which it is subject. Similarly, at Manchester University, Mr. Wardle, of the Entomological Department, was given leave of absence to make a tour in the Sudan, where he studied methods of cultivation and the insect pests which attack cotton in that country. The benefits thus derived from these opportunities to acquire at first hand a knowledge of the problems which confront those engaged in cotton-growing cannot fail to be reflected in the research work carried out in this country on behalf of the Corporation.

The Colonial Office have decided to re-open and maintain the Amani Institute in Tanganyika as a centre of scientific agricultural research for the benefit first of the British East African Dependencies and secondly of tropical economic development generally. At Amani itself the climate is not suited to cotton-growing, but the work which it is hoped to accomplish there on the general biological and physiological problems presented by tropical agriculture will almost certainly give rise to information that cannot fail to be of service to those engaged elsewhere on the study of the cotton plant and its reaction to its environment.

MECHANICAL TRANSPORT.

Reports have been received on the running of the "half track" vehicles which were sent out to Nigeria in order that they might be tested under the normal conditions of working in that country. The vehicles consisted of the following:

One Guy Roadless 25-cwt. lorry, one Burford-Kegresse $2\frac{1}{2}$ -ton lorry, two large trailers and two small trailers for kit, spares, etc. Since the Mechanical Transport Committee began their experimental work on the above vehicles, a $2\frac{1}{2}$ -ton Guy Roadless lorry has been produced. In view of the fact that the increased load that can be carried on the lorry and drawn on trailers attached to it would reduce the cost per ton mile of goods hauled, the Executive Committee agreed to the recommendation of the Mechanical Transport Committee that one of these $2\frac{1}{2}$ -ton lorries and another trailer should be sent out on trial also. The Committee have issued an interim report on the trials with these vehicles in this country: copies have already been circulated to members of the Corporation.

In the first few weeks of their working in Nigeria it became apparent that the size of the radiators was insufficient in the temperature at which the vehicles had to work, in spite of the fact that the Committee has ordered radiators of considerably greater capacity than the standard pattern. New radiators, with a capacity of nearly double that of those specially fitted to these vehicles, were sent out to meet this difficulty.

As mentioned above in the section devoted to Nigeria the experiment so far has not been altogether satisfactory. One of the chief points to be tested was the claim that these half-track vehicles would consolidate and improve an earth road; unfortunately the road first chosen by the Nigerian Government had a loose laterite surface which was hardly a fair test of the conditions under which such vehicles were intended to run.

While Colonel French was in Nigeria he arranged for them to be transferred to the road between Zaria and Kudandan, tapping the cotton markets at the latter place and at Birnin Gwarri. If certain

improvements in the direction of easing curves and gradients and making paved fords across the streams can be made on this road, it should be a better route on which to test both the road-making capacities of these lorries and their power to pull an economic load on an earth road.

The Committee have continued their investigations into the possibilities of producer-gas. The Lorry Maintenance Company having carried out successful trials with a producer-gas plant fitted to a Leyland lorry, Mr. Baillie, one of the technical members of the Mechanical Transport Committee, reported that he was satisfied with the results so far obtained by them, and a producer-gas plant was ordered by the Corporation. Arrangements have been made by the Committee whereby this plant will be fitted to a Guy lorry which will be used by Messrs. Guy Motors in the ordinary course of their business, and an accurate record kept of its performance and running costs. The two technical members of the Committee have each of them visited Belgium during the last few months and have collected information regarding the producer-gas vehicles that are in use in the Belgian Congo and the experiments that have been conducted in Belgium with these plants.

A conference was held with Dr. Ormandy, an expert on power alcohol, and Colonel W. Franklin, the Trade Commissioner for East Africa, regarding the possibilities of producing power alcohol in bulk in Uganda. Colonel Franklin, who is now in East Africa, is investigating further the question whether the local sugar factories can economically undertake the manufacture of power alcohol from molasses, and has kindly promised to report to the Committee the result of his enquiries on his return.

SPINNING TESTS.

In addition to the large-scale tests on bales of Indian cottons mentioned under the section on India above, the Corporation have been able to arrange for tests to be made on small experimental samples of cotton from various countries, including Iraq, South Africa, Queensland, Tanganyika, Uganda, and New Guinea. These tests have been carried out either by the Experimental Department

of the Fine Cotton Spinners' and Doublers' Association or through the courtesy of the British Cotton Industry Research Association, who have arranged for the tests to be made by commercial mills. These tests are of great value to those engaged in experimental work with a view to improving the qualities of cotton grown, and provide the only satisfactory means whereby an agricultural botanist occupied in such work can ascertain with what degree of success his efforts are meeting; the warm thanks of the Corporation are due to the Fine Cotton Spinners' Association and to those mills who are good enough thus to assist in this valuable part of their work.

EMPIRE COTTON CROPS FOR SEVEN YEARS 1919—25, EXCLUDING INDIA.

IN BALES OF 400 lbs.

COUNTRY.	1918-19.	1919-20.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.	1925-26. Estimates.
(1) Anglo-Egyptian Sudan ..	15,997	23,160	30,519	24,074	28,306	47,652	44,912	116,108
(2) Gold Coast ..	52	—	61	49	15	93	—	*
(3) Nigeria ..	17,500	16,200	30,000	15,096	16,811	25,694	39,137	44,000
(4) Uganda ..	36,530	47,694	81,365	48,290	88,046	128,604	196,038	170,000
(5) Kenya ..	100	100	500	417	1,250	1,653	2,250	2,125
(6) Nyasaland ..	2,591	2,026	4,615	5,422	4,036	6,873	7,118	7,500
(7) Northern Rhodesia ..	56	35	100	80	102	590	379	3,533
(8) Southern Rhodesia ..	—	—	—	—	—	1,050	4,907	12,500
(9) Tanganyika ..	—	—	7,500	7,327	7,175	11,434	18,793	20,718
(10) Union of South Africa and Swaziland ..	1,911	2,737	2,923	2,740	6,523	8,730	16,936	31,250
(11) West Indies ..	6,137	6,205	4,833	4,113	5,254	4,290	4,184	5,000
(12) Queensland ..	31	38	792	3,140	9,344	11,850	15,156	10,000
(13) Cyprus ..	1,000	3,325	2,687	2,547	1,505	2,233	3,320	*
(14) Malta ..	315	343	266	582	193	118	573	782
(15) Iraq ..	—	—	60	60	300	1,100	2,400	3,500
(16) Fiji ..	—	—	—	—	83	153	123	333
(17) Ceylon ..	—	—	—	—	49	324	121	784
	82,220	101,863	166,221	113,937	168,942	252,951	356,947	428,133†
		Percentage Increase 24·0.	Percentage Increase 63·1.	Percentage Decrease 31·4.	Percentage Increase 48·2.	Percentage Increase 49·7.	Percentage Increase 41·1.	

* No estimates as yet received.

† Total incomplete.

THE EMPIRE COTTON GROWING CORPORATION.

REVENUE AND EXPENDITURE ACCOUNT. Year ended March 31st, 1926.

To EXPENDITURE ABROAD.				£	s.	d.	£	s.	d.
<i>Tanganyika</i> —									
Salaries				244	13	6			
Local Travelling Expenses				4	15	0			
<i>Nigeria</i> —									
Salaries and Passages				783	10	0			
Labour and Materials				644	3	6			
<i>Nyasaland</i> —									
Salaries and Passages				3,454	5	1			
Local Travelling, Labour and Materials				289	12	2			
Cotton Experiment Station				544	0	10			
<i>Australia</i> —									
Salaries and Passages				2,584	14	6			
Local Travelling Expenses				16	10	10			
One Year's Grant to Commonwealth Government towards cost of maintenance of Experiment Stations				3,000	0	0			
<i>South Africa</i> —									
Salaries and Passages				6,115	17	10			
Local Travelling, Labour and Materials				325	9	11			
Senior Cotton Specialist. Part payment in compensation for loss of pension rights				1,250	0	0			
Amount advanced to Spelonken (Transvaal) Cotton Syndicate, Ltd.				10,959	8	6			
<i>Sudan</i> —									
Salaries and Passages				2,141	2	7			
Cotton Specialist. Payment in compensation for loss of pension				1,324	2	1			
<i>West Indies</i> —									
Salaries and Expenses at Experiment Station				806	13	1			
Grant to Imperial College of Tropical Agriculture				500	0	0			
<i>Fiji</i> —									
Salaries and Passages				265	18	6			
<i>Uganda</i> —									
Salaries				1,430	9	4			
<i>Swaziland</i> —									
Salaries and Passages				972	19	5			
Local Travelling and Expenses of Survey				537	11	11			
<i>Rhodesia (Northern)</i> —									
Salaries and Passages				635	2	2			
Sundry Expenses				32	15	4			

Committee	4,750	0	0
<i>Rhodesia (Southern)</i> —			
Salaries and Passages	1,630	9	2
Sundry Expenses	49	15	3
Share (one-third) of cost during the year of purchase of machinery for three ginneries	5,438	16	11
<i>Tours of Inspection</i> in Nigeria and the Sudan	411	0	9
	51,143	18	2
„ <i>Studentships</i> , including Passages and Grants for Books and Apparatus	4,550	16	4
„ <i>Research</i> —			
Grants to Institutions at Home	4,000	0	0
<i>Trinidad Station</i> —			
Amount remitted to Trinidad to date, for the purchase of land, and the Building and Equipping of Research Laboratories and Staff Houses	14,089	17	11
Cultivation and Sundry Expenses	622	9	0
Salaries and Passages	873	11	10
	19,585	18	9
„ <i>Exhibitions</i> —			
Contribution to the Cotton Textile Industry Committee on account of Wembley Costs	37	10	0
„ <i>Mechanical Transport Experiments</i> —			
Cost of Two Tractors and Trailers	2,781	8	6
Salaries, Passages and Expenses	2,751	8	11
	5,532	17	5
„ Office Staff Salaries	8,541	5	6
„ Rent	700	0	0
„ Gas, Electricity, and Telephone	72	18	6
„ Upkeep of Offices	132	16	3
„ Travelling Expenses—Members of Council and Committees	765	2	11
„ Staff	154	12	1
	919	15	0
„ Legal Expenses and Accountancy Charges	200	6	8
„ Printing and Stationery	533	19	11
„ Printing and Publishing “The Empire Cotton Growing Review” (including Editor's salary)	862	11	10
„ Sundry Expenses	375	8	1
„ Depreciation of Furniture and Fittings	48	11	10
„ Income Tax	45	4	0
	93,283	18	3
„ Balance (being Excess of Revenue over Expenditure for the year)	41,011	3	10
	£134,295	2	1

THE EMPIRE COTTON GROWING CORPORATION.

BALANCE SHEET, March 31st, 1926.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
CAPITAL GRANT from Imperial Government	..	978,715	0 0	FURNITURE AND FITTINGS AT COST	..	666	11 0
Sundry Creditors	..	3,853	4 8	Less Depreciation to date	..	229	4 6
REVENUE AND EXPENDITURE ACCOUNT—				INVESTMENTS AT COST—			
Balance at March 31st, 1925	..	143,175	3 7	Capital Grant	..	978,048	9 0
Excess of Income over Expenditure, Year ended March 31st, 1926	..	41,011	3 10	Revenue and Expenditure Account	..	175,344	4 10
				SUNDRY DEBTORS	..	1,153,392	13 10
				CASH AT BANKERS—	..	1,102	1 7
				Williams Deacon's Bank, Ltd., Manchester	..	6,529	7 0
				Williams Deacon's Bank, Ltd., London	..	708	6 5
				British Overseas Bank	..	2,549	14 0
				Cash in hand—London and Abroad	..		
				NOTE.—The Assets of the Corporation also include the following, the cost of which has been charged to Revenue:			
				1. Three Lorries and Trailers for Transport Experiment	..	3,681	7 6
				2. Ginning Machinery for Three Gineries in Southern Rhodesia (One-third of outlay to date)	..	10,700	3 1
				3. Amount advanced to Spelonken (Transvaal) Cotton Syndicate, Ltd., on account of Ginnery and Working Capital	..	20,092	5 1
				4. Cost to date of Land, Buildings and Equipment of Trinidad Research Station	..	14,089	17 11
					£48,563	13 7	
					£1,166,754	12 1	

We have audited the above Balance Sheet and the Revenue and Expenditure Account and certify that all our requirements as Auditors have been complied with. We report to the members that in our opinion the accounts are properly drawn up so as to exhibit a true and correct view of the state of the Corporation's affairs as shown by the books of the Corporation.

(Signed) DAVID SMITH, GARNETT & CO.,
CHARTERED ACCOUNTANTS, MANCHESTER.

April 23rd, 1926.